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(54) Method of producing a flavour composition suitable for flavouring tea

(57) A flavour composition suitable for flavouring tea is made by mixing an oily, foreign flavour with an aqueous tea extract or an aqueous solution of a dried tea extract to form an oil-in-water emulsion, followed by spray drying the resulting emulsion.

The flavour composition may be mixed with dried tea extract and/or sugar, or agglomerated with tea dust and mixed with leaf tea.

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SPECIFICATION

Method of producing a flavour composition suitable for flavouring tea

5 The present invention relates to a method of producing a flavour composition suitable for flavoring tea.

Tea flavoured with a foreign flavour, that is to say, an added flavour not naturally occurring in the tea, for example, of citrus fruit, is valued by large groups of consumers for its particular organoleptical properties.

Various products are commercially available from which tea with a desired foreign flavour can be prepared in a simple manner. Some of these products are mixtures of dried tea extracts, foreign flavour, for example citric acid, and possibly sugar, which when dissolved in water, to which ice cubes are added, produce so-called "iced tea". Other known products consist of flavoured leaf tea, from which a brew can be prepared in the manner conventional for leaf tea. Various methods are known for the preparation of such leaf tea. In some of these, an oily flavour is applied direct to the leaf tea, for example, by sprinkling the tea with the desired quantity of flavour and subsequently mixing it together, or by keeping the tea in agitation in a tumbler while the flavour is sprayed into the tea mass in the desired quantity. Although it is possible in this way to produce a product having organoleptical properties appreciated by many, these methods have the disadvantage that, in connection with the volatility of some components of the oily flavour, the tea thus flavoured must be packed in an air-tight fashion, and once the package has been opened, is apt to lose its particular flavour quite rapidly. Such an oily flavour deteriorates when contacted with oxygen from the air and, as a result, loses its valued organoleptical properties. As a consequence, these unstable products are less suitable for being packed in teabags.

In order to eliminate this disadvantage, it has been proposed to flavour leaf tea by mixing the tea with a flavour composition in which the flavour is encapsulated in a water-soluble, non-volatile carrier, so that the flavour cannot volatilize or deteriorate, even if the composition is exposed to the open air for a long time. Such a stable flavour composition can be prepared, in accordance with Dutch patent application 74,11619, by spray drying an emulsion of an oily flavour in an aqueous solution of gum arabic. The particles of the powder thus produced consist of microcapsules, in which the flavour is encapsulated within a skin of gum arabic. This flavour composition can be agglomerated with tea dust to a particle size suitable for being mixed with leaf tea. A similar method is proposed in Dutch patent application 76,11520. Although the flavour d tea thus produced can be packed and stored without particular precautions, for example in tea-bags without the need to fear that the flavour deteriorates or is lost through volatilization, these known flavour compositions have the disadvantage of containing a rather large proportion of foreign carrier, for example more than 20% gum arabic, which cannot be beneficial to the

organoleptical properties of the product. In addition, the presence of foreign carriers in flavoured tea is objected to in certain countries on the ground of legal provisions.

70 It has now been found that it is possible to replace the foreign carrier in a flavour composition of the type described above by a carrier belonging to tea, namely, by soluble tea constituents. In particular it has been found that, by spray drying an emulsion of an oily flavour in an aqueous tea extract, a powdered product is produced, in which the oily part of the flavour in the particles is encapsulated in a skin of dry, water-soluble components, and furthermore that the flavour composition thus produced is highly stable, and lends itself excellently to agglomeration by means of water as the agglomerating liquid.

The present invention accordingly provides a method of preparing a flavour composition suitable for flavouring tea, which comprises mixing an oily foreign flavour with an aqueous solution of a carrier to form an oil-in-water emulsion, and spray drying the resulting mixture, said method being characterised by using as a carrier solution an aqueous tea extract or an aqueous solution of a dried tea extract.

90 For the preparation of the flavour composition, a flavour is used that is suitable for flavouring tea. Examples are lemon, orange, rum, peppermint, bergamot, jasmine and rose flavour. The flavour consists in full or in part of oily components immiscible with aqueous tea extracts. The content of oily components should be sufficient to form an emulsion thereof in an aqueous tea extract. In addition to the oil phase, the flavour may contain an aqueous phase. This aqueous phase is or is not homogeneously mixed with the oil phase, and may contain solid, for example citric acid, in solution.

The selected oily flavour is intimately admixed with an aqueous tea extract to form an oil-in-water emulsion. Naturally, instead of an extract, an aqueous solution of a dried tea extract may be used. The extract may be prepared in known manner by means of hot water from fermented or non-fermented (green) tea. The solid content of the emulsion should be sufficient for stabilization of the flavour, that is to say, that practically all flavour-containing oil droplets can be encapsulated within a skin of solid, water-soluble components. These solid, water-soluble components are the solid tea components from the extract, and, if the flavour used contained an aqueous phase with solid dissolved therein, the solid components from the flavour. Hitherto, the best results have been obtained using emulsions having solid levels in the aqueous phase of at least 20% by weight. The requirement that the mixture of flavour and extract must be capable of being spray dried imposes an upper limit on the solid level of the extract, which depends on the spray drying plant used. Mostly this upper limit is in the order of 50% by weight.

125 Preferably the mixture of flavour and extract is of such a composition that the spray dried mixture contains 5-35% components of the selected foreign flavour as an oil phase, depending on the strength of the flavour. In this connection, for example, lemon, orange and rum flavour are regarded as weak

flavours, and bergamot, jasmine and rose flavour as strong ones, peppermint flavour having a medium strength. In order to set off weak flavours to their advantage, they are preferably mixed with an extract of green tea, which has a tea flavour less pronounced than that of an extract of fermented tea. Strong flavours can also be combined with an extract of fermented tea.

The spray drying of the mixture of flavour and extract may be effected in a known manner.

The flavour composition produced by spray drying can be used in various manners. Thus, for example, it may be used as such or in admixture with dried tea extract (instant tea powder) and/or sugar for the preparation of so-called "iced tea". In order to improve its moisture-receptiveness, homogeneity and velocity of dissolution, the composition or mixture may be agglomerated. If an extract of green tea has been used for the preparation of the flavour composition, the natural tea flavour of the composition is sometimes insufficient, and blending with dried tea extract is desirable. This is mostly unnecessary if an extract of fermented tea has been used.

If the flavour composition is intended for flavouring fermented or non-fermented leaf tea, it is preferably agglomerated with tea dust. The tea dust may consist of one or more tea fractions collected in sieving dried fermented tea, for example, from so-called "siftings" having a particle size of 0.1-0.5 mm, or of a blend thereof with so-called "dust tea" having a particle size of 0.2-0.7 mm.

Agglomeration may be effected in known manner, for example, in an agglomeration dish as described in Dutch patent application 74,11619, referred to hereinbefore. Water is a suitable agglomeration liquid.

Preferably, the flavour composition is agglomerated with approximately the same quantity of dust tea by weight. By a suitable control of the conditions during the agglomeration, the particle size of the agglomerated product can be attuned to the dimensions of the leaf tea with which the granular flavour composition must be admixed.

Where necessary, the agglomerated product is dried and subsequently mixed with leaf tea. The quantity of flavour composition in the mixture depends on the strength of the flavour, and is generally 5-24% by weight.

The present invention will now be further illustrated by way of the following examples.

Example I

3.8 kg of a commercially available liquid lemon flavour having a water content of approximately 60% by weight, and comprising a mixture of deterpinated lemon oil and lemon juice inspissated to approximately 15% of its original volume was emulsified in a solution of 14.2 kg dried extract of green tea in 30 kg water, whereafter the resulting emulsion was spray dried. This resulted in 15.7 kg flavour composition, which by means of water was agglomerated with a like quantity of tea siftings to form granules having a size of 0.5-2mm. For the agglomeration, an agglomeration dish was used as described in Dutch patent application 74,11619.

8 kg of the agglomerated product was mixed with 92 kg fermented leaf tea having sizes of 0.5-4mm, whereafter the mixture was packed in teabags of wetstrength paper. The tea thus flavoured produced a tea drink with the desired lemon flavour even after prolonged storage without particular precautions.

Example II

6 kg of the liquid lemon flavour described in Example I was emulsified in 40 kg aqueous extract of fermented tea having a dry content of 14% by weight, whereafter the resulting emulsion was spray dried to produce 8 kg flavour composition. By intimately mixing 19 g of this flavour composition with 90 g powdered sugar, an instant powder was produced, which when dissolved in ice water to a concentration of 10 g/l produced so-called "iced-tea".

Example III

10 kg of a commercially available peppermint oil was emulsified in 40 kg aqueous extract of fermented tea having a dry content of 14% by weight, whereafter the resulting emulsion was spray dried. The product was 8 kg flavour composition, which by means of water was agglomerated with a like quantity of tea siftings to form granules having a size of 0.2-2.5 mm. A mixture of these granules with leaf tea as in Example I was perfectly stable and suitable for being packed in teabags. The tea thus flavoured produced a tea drink having the desired peppermint flavour.

CLAIMS

1. A method of preparing a flavour composition suitable for flavouring tea, which comprises mixing an oily foreign flavour with an aqueous solution of a carrier to form an oil-in-water emulsion, said carrier solution being an aqueous tea extract or an aqueous solution of a dried tea extract, and spray drying the resulting mixture.
2. A method as claimed in claim 1, in which the solid content of the aqueous carrier solution is selected so that the emulsion contains at least 20% by weight of dry components dissolved in the aqueous phase.
3. A method as claimed in claim 1 or claim 2, in which the aqueous carrier solution comprises up to 50% by weight of solids.
4. A method as claimed in any of claims 1 to 3, in which the flavour and the aqueous carrier solution are mixed together in such a ratio that the spray dried product contains 5-35% by weight of foreign flavour components as an oil phase.
5. A method as claimed in any of claims 1 to 4, in which the oily foreign flavour is lemon, orange, rum, peppermint, bergamot, jasmine or rose flavour.
6. A method as claimed in any of claims 1 to 5, in which the spray dried product is agglomerated with tea dust.
7. A method as claimed in claim 6, in which water is used as an agglomeration liquid.
8. A mixture of dried leaf tea and a flavour composition produced by the method of claim 6 or

claim 7.

9. A teabag of wet-strength paper, filled with a mixture according to claim 8.

10. A method as claimed in claim 1, and substantially as hereinbefore described with reference to any of the Examples.

11. A mixture as claimed in claim 8 and substantially as hereinbefore described with reference to Example I or Example III.

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